

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

## PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY  
(PCT Rule 43bis.1)

Date of mailing  
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
PCT/GB2004/002718

International filing date (day/month/year)  
24.06.2004

Priority date (day/month/year)  
27.06.2003

International Patent Classification (IPC) or both national classification and IPC  
G01F11/00, B65G53/52, B01F3/18, B01F15/04

Applicant  
IMPERIAL COLLEGE INNOVATIONS LIMITED

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office - P.B. 5818 Patentlaan 2  
NL-2280 HV Rijswijk - Pays Bas  
Tel. +31 70 340 - 2040 Tx: 31 651 epo nl  
Fax: +31 70 340 - 3016

Authorized Officer

Real Cabrera, R

Telephone No. +31 70 340-4256



10/561573

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/GB2004/002718

IAP20 Received 19 DEC 2005

**Box No. I Basis of the opinion**

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
  - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material:
    - ☐ a sequence listing
    - ☐ table(s) related to the sequence listing
  - b. format of material:
    - ☐ in written format
    - ☐ in computer readable form
  - c. time of filing/furnishing:
    - ☐ contained in the international application as filed.
    - ☐ filed together with the international application in computer readable form.
    - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

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**Box No. II Priority**

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1. ☒ The following document has not been furnished:

- ☒ copy of the earlier application whose priority has been claimed (Rule 43bis.1 and 66.7(a)).
- ☐ translation of the earlier application whose priority has been claimed (Rule 43bis.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43bis.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.
3. Additional observations, if necessary:

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**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes: Claims	5,7
	No: Claims	1-4,6,8-13
Inventive step (IS)	Yes: Claims	7
	No: Claims	1-6,8-13
Industrial applicability (IA)	Yes: Claims	1-13
	No: Claims	-

2. Citations and explanations

**see separate sheet**

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**Box No. VII Certain defects in the international application**

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The following defects in the form or contents of the international application have been noted:

**see separate sheet**

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**Box No. VIII Certain observations on the international application**

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The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING  
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/GB2004/002718

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial  
applicability; citations and explanations supporting such statement**

1. Reference is made to the following document:  
D1: US-A-5 098 229 (MEIER FREDERICK U ET AL) 24 March 1992 (1992-03-24)
- 2.1 Additionally to the in Item VIII mentioned lack of clarity notwithstanding, the subject-matter of **claim 3** is not new in the sense of Article 33(2) PCT, and therefore the criteria of Article 33(1) PCT are not met.

The document D1 discloses (cf. figures) *a powder injection system (cf. Item VIII, §1; and, D1, column 5, lines 25-35) for use with a powder reservoir (90) having a first, open end (103) and an opening at or near to a second end of the powder reservoir (cf. column 4, lines 43-46) to allow egress of gas from the powder reservoir at a point distal to the first end of the powder reservoir (implicit in D1); the powder injection system comprising:*

- *a gas supply inlet for supplying gas (113);*
- *an outlet (76);*
- *a channel in fluid connection with the gas supply inlet and the outlet (112);*
- *a powder inlet (96) in fluid connection with the channel for receiving a powder reservoir; and*
- *control means (142) for controlling the supply of gas via the gas supply inlet, the control means being arranged, in use (cf. column 6, line 11 - column 7, line 45):*
  - (i) *to supply gas via the gas supply inlet to the channel and the powder inlet at a velocity sufficient to cause fluidisation of powder at the powder inlet (cf. Item VIII, §3);*
  - (ii) *to reduce the supply of gas to cause powder to pass from the powder inlet and to collect in a region of the channel adjacent a point where the powder inlet connects with the channel; and*
  - (iii) *to repeat steps (i) and (ii) as many times as required, subsequent initialisation of step (i) causing the powder collected in the channel to be moved by the gas towards the outlet.*

- 2.2 For the same reasons as explained in §2.1, the subject-matter of **claims 9, 10**

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**and 13** is not new in the sense of Article 33(2) PCT, and therefore the criteria of Article 33(1) PCT are not met.

3. Dependent **claims 4-6, 8, 11 and 12** do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step, the reasons being as follows:
  - 3.1 The additional features of **claims 4-6, 8, 11 and 12** are already disclosed in document D1, cf. figures.
  - 3.2 The additional features of **claim 5** appears to be obvious for the skilled person.
4. The combination of the features of dependent **claim 7** is neither known from, nor rendered obvious by, the available prior art.

**Re Item VII**

**Certain defects in the international application**

1. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D1 is not mentioned in the description, nor is this document identified therein.
2. The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

**Re Item VIII**

**Certain observations on the international application**

1. The term "*microchip*" used in the claims is unclear and leaves the reader in doubt as to the meaning of the technical features to which it refers, thereby rendering the definition of the subject-matter of the claims unclear, Article 6 PCT.

Said term cannot be considered as having specific characteristics which can be used when trying to distinguish from the cited prior art. According to the disclosure of the present application, the claimed apparatus ("*chip*") has certain typical dimensions, cf. page 4, line 28 to page 6, line 10. Therefore, the claims can only be interpreted based on the order of magnitude of said typical dimensions.

2. It is clear from the description that the features contained in **claim 2** (i.e. the control means for controlling the supply of gas) are essential to the definition of the invention.

Since independent **claim 1** does not contain these features it does not meet the requirement following from Article 6 PCT taken in combination with Rule 6.3(b) PCT that any independent claim must contain all the technical features essential to the definition of the invention.

On the other hand, **claim 3** does fulfill the requirement following from Article 6 PCT taken in combination with Rule 6.3(b) PCT, as it is a combination of **claims 1 and 2**. Therefore, the present Written Opinion does not consider **claims 1 and 2** and is based on **claim 3**.

3. **Claims 3 and 10** do not meet the requirements of Article 6 PCT in that the matter for which protection is sought is not clearly defined. The claims attempt to define the subject-matter in terms of the result to be achieved, which merely amounts to a statement of the underlying problem, without providing the technical features necessary for achieving this result.

The expression "*...at a velocity sufficient to cause fluidisation of powder...*" does not let the reader know how this result can be achieved. It is clear that said result can only be achieved when a certain relationship between the counter-pressure between the region of the channel (24) and the outlet (8), and between the region of the channel (24) and the powder inlet (10) is achieved. The features needed to achieve said counter-pressure is not described.